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# VICTORIAN ENTOMOLOGIST



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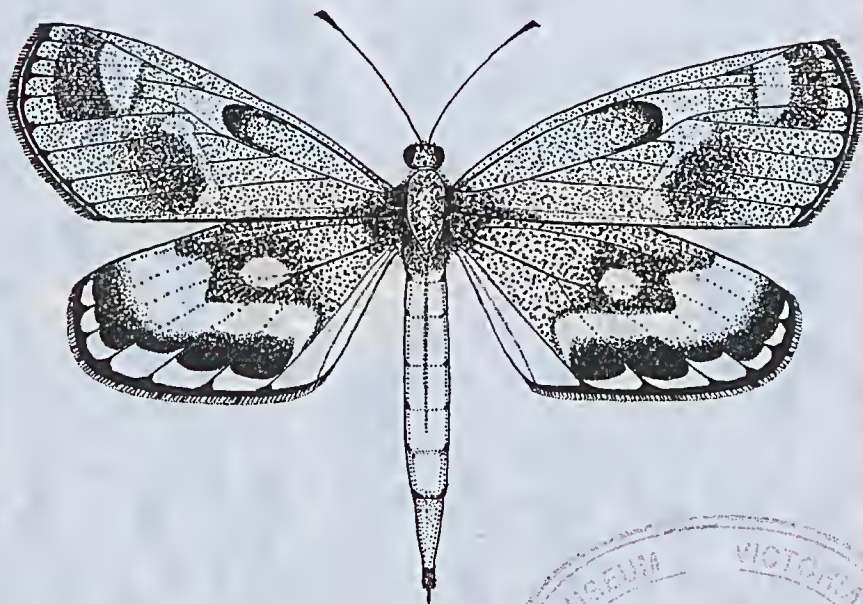
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*News Bulletin of The Entomological Society of Victoria Inc.*

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## MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

## OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

## MEETINGS

The Society's meetings are held at the 'Discovery Centre', Lower Ground Floor, Museum Victoria, Carlton Gardens, Melway reference Map 43 K5 at 8 p.m. on the third Tuesday of even months, with the exception of the December meeting which is held on the second Tuesday. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

## SUBSCRIPTIONS (2008)

Ordinary Member	\$30 (overseas members \$32)
Country Member	\$26 (Over 100 km from GPO Melbourne)
Student Member	\$18
Electronic (only)	\$20
Associate Member	\$ 7 (No News Bulletin)
Institution	\$35 (overseas Institutions \$40)

Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

**LIFE MEMBERS:** P. Carwardine, Dr. R. Field, D. Holmes, Dr. T. New, Dr. K. Walker.

Cover design by Alan Hyman.

**Cover illustration:** The pale Sun Moth, *Synemon selene* Klug, is an endangered species restricted to perennial grassland dominated by *Austrodanthonia* in Western Victoria. It is now extinct in SA, and was presumed extinct in Vic. until its rediscovery, in February 1991, by the late Frank Noelker and Fabian Douglas. The Victorian Populations are parthenogenetic with all specimens comprising females, a most unusual trait in the Castniidae. Illustration by Michael F. Braby.

## Minutes of the General meeting 20 June 2007

**Present:** L. Gibson, P. Carwardine, S. Curle, I. Endersby, P. Marriott, K. Harris,  
D. Stewart, G. Kuseff, A. Kallies

**Apologies:** D. Dobrosak, K. Dunn, R. Vagi, G. Weeks

### Minutes:

Minutes of the Council Meeting [Vic. Ent. 37(3): 30] were accepted. I. Endersby, P. Marriott.

### Correspondence:

- Received the Australian Journal of Entomology, Volume 46, part 2, 2007.
- Received nomination for new member David Ferguson.
- Rachael McBride and Lucinda Gibson accepted as members.

**Treasurers Report:** General account \$6149, Le Souëf account \$4629.

30 people have yet to pay this years membership renewal. D. Dobrosak to remind members their payment is outstanding.

**Editors report:** No information received for this meeting.

### General Business:

#### Website Name:

The new website URL is now up and working: [www.entsocvic.org.au](http://www.entsocvic.org.au)

### Next Meetings:

July: Council meeting

August: Bees

September: Council meeting

October: Excursion to Melbourne Zoo Butterfly House

November: Council Meeting

December: Members' Night

Meeting closed at 21:48

This was a member's open meeting and a number of presentations from the members followed. I have tried to give a flavour of these excellent presentations within these minutes, a summary is included on page 48

All photo's are reproduced with the kind permission of the photographer.

## Minutes of the council meeting 17 July 2007

**Present:** P. Carwardine, S. Curle, I. Endersby, P. Marriott, D. Dobrosak

**Apologies:** D. Stewart, P. Lillywhite, K. Walker

### Minutes:

Minutes of the Council Meeting [Vic.Ent. 37(3): 30] were accepted. I. Endersby, P. Carwardine.

### Correspondence:

- Received a request from the "International Commission on Zoological Nomenclature" to become an affiliation of the society. This is a no cost option for the Ent Soc Vic thus P. Marriott will accept the invitation.

### Treasurer's Report:

General account \$5829, Le Souëf account \$4744

30 people have yet to pay this year's membership renewal. D. Dobrosak to send final reminders before stopping these outstanding memberships.

Subscription increase will need to have a deadline for opting to have paper or online copies of publication. This was agreed to be 31<sup>st</sup> January which will allow sufficient time to order the correct number of copies from the printers.

P. Carwardine to establish if reduced number of copies will incur increased printing costs.

We will also need to amend the membership application form and renewal forms to reflect electronic requirement and also to capture all members email address if at all possible. I. Endersby agreed to makes these amendments.

Australian Entomological Society affiliation subs are currently due (they have changes their end of year renewal dates to 30 June). I. Endersby to address current pricing for affiliated membership with Austentsoc. directly.

### Editor's report:

Discussion around the requirement for the next publication of *Vic. Ent.* to be in colour or otherwise. Agreed to have a colour issue but will need further images for the publication. S. Curle to obtain these images.

### General Business:

#### Le Souëf:

By the end of this week (20<sup>th</sup> July), I. Endersby to send out call for nominations for this years Le Souëf award, requesting nominations be sent to the secretary, either at home or via email [secretary@entsocvic.org.au](mailto:secretary@entsocvic.org.au).

Traditionally, Ian would target all entomological, Royal and capital city Field Naturalist's groups.

#### Field Naturalists Club of Victoria's Terrestrial Invertebrate Group (TIG):

P. Marriott to progress the options of working close with the TIG. We were waiting for them to respond but Peter will now chase.

### Excursion:

I. Endersby to follow up contacts at the Melbourne Zoo for this years excursion (October meeting).



### Internet Presence:

S. Curle has put together some figures to give the society an idea as to what sort of sizing one might expect to need if we were to put up onto the Internet a checklist of species found within Victoria. We currently have a 2Meg limit on our existing website which is sufficient for our existing needs, but will need to evolve further should we look to utilise the internet presence further. With estimated 10% of the moth families covered, approximately 50meg of webspace is required. This would cater for target audience of Joe Public, how do I identify this moth, and the more serious professional trying to find location data (Victoria) on a particular species.

Clearly a lot more work needs to go into this area with reducing the pace requirements etc.

P. Marriott to progress the option of hosting space and establish how we might move forward in this area.

### "Wings and Stings":

I. Endersby has scanned 14 of the original publications of the society onto a CD. There are two versions on the CD, one in a PDF format, the other in a searchable format.

We are looking to offer a copy of said CD to members for a nominal fee of \$15.

### Storage of journal back issues:

I. Endersby reported that the La Trobe storage facility that we were using has now closed down and is no longer available to us. Ian currently has these publications at his home.

### Australian Entomological Society journal back issues:

I. Endersby reported that all issues of *Australian Journal of Entomology*, published from 1962 (Volume 1) to 1997 (Volume 36), are now fully digitised and freely available to view online, courtesy of the Australian Entomological Society.

<http://www.blackwellpublishing.com/journal.asp?ref=1326-6756>

<http://www.blackwell-synergy.com/loi/aen>

### Next Meetings:

#### 2007:

July: Council meeting

August: Bees – confirmed, P. Carwardine to verify details.

September: Council meeting

October: Excursion (Melbourne Zoo)

November: Council Meeting

December: Members' Night

#### 2008:

We need to establish future meeting presentations and excursion. We would like to hear from any members with suggestions and items that they would like to see on next years agenda.

Meeting closed at 18:15

## Members Night presentations

### Peter Marriott: Velvet Ant?

Peter presented a few slides on a creature he has yet to identify from a recent Scout Jamboree at Elmore earlier this year. Currently understood to be a female Velvet Ant of the family Mutillidae; does anyone have an accurate identification?



Photo 1. Peter M. Velvet Ant?



Photo 2. Peter M. Velvet Ant?

### Ian Endersby: Odonata / Linnaeus

Ian reminded us that the Order name 'Odonata' was originally published by Fabricius in 1793. Types of many other insects are also included in his publications, and scanned pdf files of his works and many others from that era are now available at [www.animalbase.uni-goettingen.de/zooweb/servlet/AnimalBase/list/references?digitized\\_only=true](http://www.animalbase.uni-goettingen.de/zooweb/servlet/AnimalBase/list/references?digitized_only=true)

It is much quicker to search for AnimalBase and follow the prompts from the homepage. The full list with links to the pdf's has saved on my computer as 'AnimalBase digitized references list page.htm' so that might be a clue to a simpler pathway.

Carl Linnaeus was born 300 years ago in a small village in Småland, Råshult. Linnaeus' birthday will be celebrated on 23 May, and many places, including Uppsala, his place of residence, and the Linnean Society of New South Wales, will be holding celebrations during this tercentenary year.

### Grant Kuseff: Photographs from Central South America Collecting Trips

Grant has been lucky enough to be able to follow a schoolboy dream of travelling to tropical Central South America on collecting trips. The photographs that Grant showed us were of both moth and butterfly collecting along with a few other interesting images thrown in, such as an ant that had been parasitised by some form of fungus.

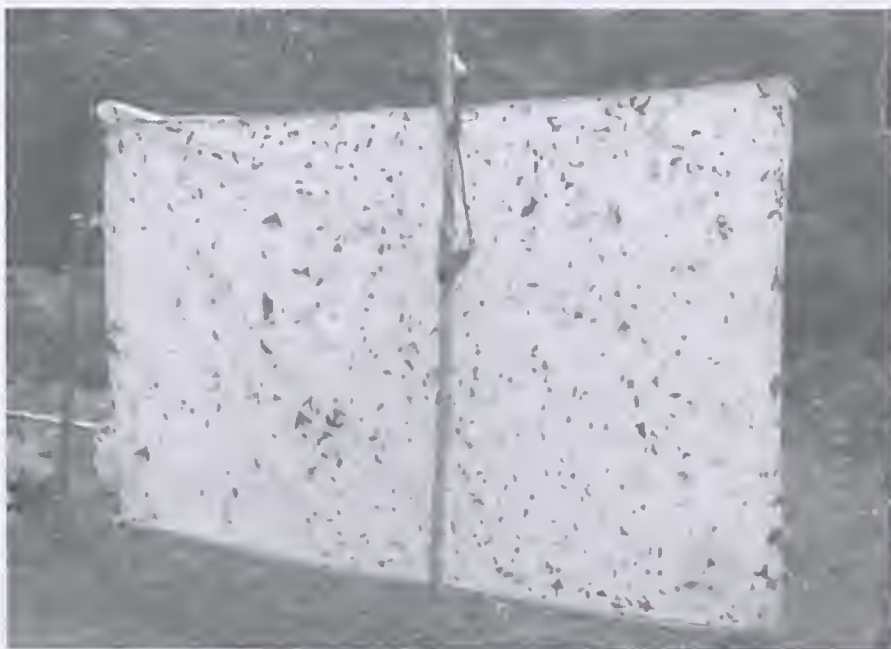
Grant explained that a variety of "baits" was used for attracting the many different varieties of butterflies. Aside from the traditional fruit based lures, some of the more unusual include dog droppings, rotten fish and even a Peruvian lure of 4 day old(+) mixture of human urine & excrement

"This mixture was truly breathtaking!! - but the resultant butterflies attracted was even more so".

Grant was also kind enough to bring in 3 draws from his collection, showing some of the variety to be found just in these families of Heliconia, Automeris and Saturnids.

A couple of Grant's pictures follow to give you a flavour of his fascinating collecting trips.

2



The morning after ...



Butterflies feeding

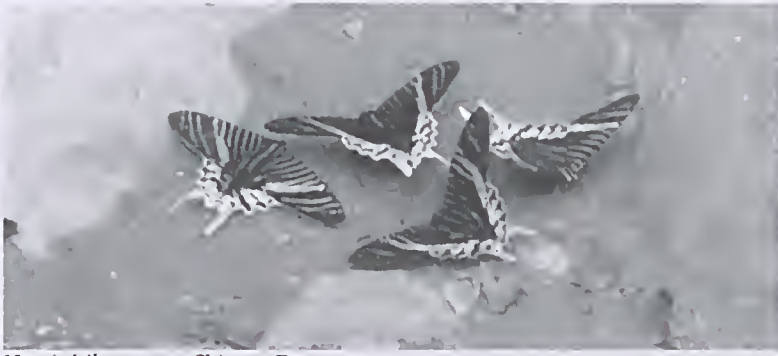




*Morpho patrocles* - Shima , Peru



Parasitised (by fungus) ant - with rhizomes Peru



*Urania leilus* - Shima, Peru



*Choriunea faunus* - Shima, Peru



Unknown Odonata spp. - Guyana

### David Stewart: The effect of Honeybee's on the Peninsular

David presented an equally fascinating selection of photographs from his studies on the pollination of native wildflowers and indeed how Honeybees (in particular) are merely nectar robbers. This is in contrast to the evolution of the smaller native bees that live in harmony with the wildflowers. Some of these macro photographs clearly showed how the native bee's locked onto the petal rib whilst feeding getting a good dose of the flowers pollen in the process. Others showed how the honey bee is far too big for the flower to aid pollination, merely 'robbing' the flower of its nectar.

The following two illustrations show the *Scaveola* sp. photographed at Arthur's Seat, Morningside Peninsula. Many plants achieve pollination through visits to the flower by specific insects or suites of insects that have a body size and floral foraging activity complementing the specialised flower morphology. Fan flowers have a thickened rib on the outer petal edges, with narrowing of the petals in this area.



Photo 1 (above) shows a native bee foraging at the flower with legs clamped around the narrowed strengthened petal area. The stamens and nectar are deep within the flower directing bees of a suitable size past the female organ of the flower which is beautifully adapted to brush pollen from suitable sized visitors.



Photo 2 (above) illustrates the introduced honeybee foraging at this plant and demonstrates the size relationship. Many specialised flowering plants are visited by a suite of pollen and nectar foraging insects that do not contribute a pollination service. Some plants compensate for the loss by producing surplus pollen and or nectar.

Lucinda presented some of the material she had produced for her work at the museum using a much specialised method of macro photography with a montage program, "Helicon Focus". The images are photographed many times in macro mode, essentially taking a slice at a time. These are then merged to produce one completely focused macro image. The size of the specimen makes a difference to the number of slices needed, and subsequently the time it takes to produce one completed image. Lucinda has so far completed about 600 of the target 4000 specimens. A couple of the images are shown here, for more details, please contact Lucinda direct.

*Aonychus lituratus*  
Type

T-7181



0.25 cm

*Melobasis iridicolor*  
Lectotype male

T-8155



0.5 cm



*Bolboceras trymoderum*  
Holotype female

T-12692



*Dilochrosis frenchi*  
Holotype male

T-12666

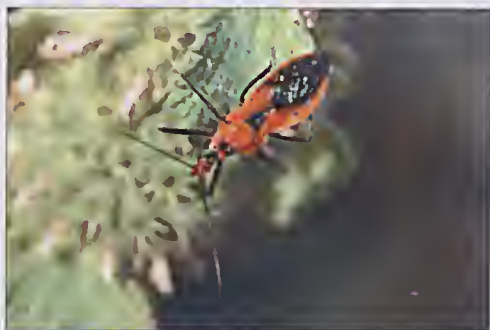


### Ken Harris: Insects from Morwell National Park

Ken gave us an interesting presentation of some of the remarkable insects that he has found at Morwell National Park. Some Ken has been able to identify, others a little assistance would be desired. A couple of those photographs that Ken presented are attached here:



*Metriorrhynchus rhipidius* - Lycidae



Reduviidae - *Gminatulus australis* - found among Horehound Bugs (*Agnoscelis rutila*) among which it was quite well camouflaged



Unidentified ladybird from the Coccinellidae

Editor - Note, based on the antenna shape (relatively long and filliform not short and clavate in the last three segments) this is a Chrysomelid, probably *Peltoschema oceanica* (Boisd.)



*Scutiphora pedicilatta* - Scutelleridae

Two views of the same individual, photographed less than two hours apart.  
Found feeding on White Elderberry - *Sambucus gaudichaudiana*.



# An Extension to the Known Distribution of *Eurema alitha* (C. Felder & R. Felder) into South-Eastern Queensland (Lepidoptera: Pieridae)

Kelvyn L. Dunn

e-mail: [kelvyn\\_dunn@yahoo.com](mailto:kelvyn_dunn@yahoo.com)

## Summary

The butterfly *Eurema alitha* (C. Felder & R. Felder) is recorded in south-eastern Queensland for the first time and its repeated presence in central Queensland confirmed during summer and autumn. A method of determined searching was used to gain evidence of a more extensive range than published records indicated. In northern Australia, close similarity between species and marked seasonal variation within species leads to difficult field identifications and likelihood of error. For this genus then, the need to collect specimens to confirm one's initial visual identifications is emphasised as mandatory for range extensions and the norm for confirmation of earlier reports of distribution, there being few exceptions. Even a photo or video frame may not show characters clearly enough to eliminate all doubt in the minds of others.

## Introduction

In Queensland, the 'Scalloped grass-yellow', *Eurema alitha* (C. Felder & R. Felder), occurs from Torres Strait and Cape York south-east to Raglan Creek, 65km south of Rockhampton (Braby 2000). Typical of many butterflies in eastern Australia, the species does not range far inland where conditions become increasingly arid. Its sibling, *E. hecabe*, however, sometimes appears in the interior of Queensland (Braby 2000). Recognition of *E. alitha* in Australia is very recent (Braby 1997) and for this reason its distribution may be inexactly known; the species not having been sought by collectors before 1997. Begging the question of knowledge inadequacy, I attempted to clarify the southern limits on three trips to central Queensland since 2000.

## Methods: observation versus collection

Where *Eurema* adults were common, my routine survey process at each site involved collection of 10-15 adults where possible. This I achieved by rapidly scooping up adults disturbed from roosting areas for identification and release. At sites where they were solitary or in low numbers, I captured one or more to determine the species' present. Because of their very close similarity and variability (Braby 2000, Moss & Kendall 2006), members of the *hecabe* group normally require in-hand identification, a field observation (see Braby 1999 for discussion) usually being an unreliable substitute in my judgement. Exceptions can occur however during the morning or late afternoon when adults are feeding, egg laying or roosting, invariably with their wings closed though, but when low-angle sunlight can reveal the forewing patterns by translucence (Figure 1). Under these optical conditions, some individuals are identifiable as *hecabe* with accuracy, particularly in central-southern Queensland where *alitha* is uncommon. Obviously, where regional knowledge is scanty, collection is the best safeguard of the scientific record (Braby 1999), especially where one is contributing data to other's publications or databases. Even photos or video-frames, although often an advancement over a stand-alone field observation by an expert and certainly 'conservation-friendly' in the minds of some enthusiasts, sometimes do not render characters adequately to quash all doubts. For further discussion, see Note 8 in Dunn & Dunn (2006: 813).





**Figure 1.** The forewing tooth-like marking can transmit through the wings from the upper side as seen in this ovipositing female video-recorded at Papasee's Sliding Rock, Upolu Island, Samoa (12 Feb 2003: 1050h). The tooth, characterised as wide, deep and with parallel edges in this individual enables her highly probable identification as *E. hecabe*; in actuality the only species historically known from Samoa (Tennent 2006, 2006a). Low lighting in heavily overcast weather has reduced clarity compared with that visible to the eye of the observer in situ.

### New records

Available records of *E. alitha* from central Queensland remain sparse, and my own searches were mostly unproductive. Of many sites examined only two produced *E. alitha*. I took one male at Charley Creek, 11km SW of Duaringa (January 2001) and, on a later trip, a female at the Dawson River 13km SE of Duaringa (April 2007). Some females can be perplexing, but this one would seem closer to *alitha*; her forewing terminal band being somewhat obliquely indented between veins M3 and CuA2 (Braby 2000) relative to females of *hecabe* from central and southern Queensland (KLDC). Both localities support the central Queensland distribution presented by Braby (2000).

Surveys at many sites in southern Queensland, south of the latitude of Raglan Creek and the Duaringa area, have been even less productive. Only *E. hecabe* occurred at those I visited bar one. The exception was River Heads, a popular butterfly collecting site north-east of Maryborough. Here I randomly netted three males, these being three of only four adults of the *hecabe* group seen in one hour and 50 minutes collecting, their low abundance probably being linked to prolonged drought continuing into the autumn of 2007. One was *E. alitha* (Figure 2), and on recognising this, I was both surprised and delighted with the range extension it represented. I netted the solitary male in grassland adjacent vine-forest in the same general area where *E. hecabe* occurred. On that day (16<sup>th</sup> April), the *hecabe* group was uncommon at River Heads, evidenced by a re-encounter of one of the *hecabe* adults, recognisable by an excised section of the hindwing, in a *Nephila* spider web an hour later. Later that day another was collected, as a singleton, flying in mangrove ecotone a couple of kilometres to the north-west of the River Heads boat ramp, and it too was *E. hecabe*.

Over many trips collecting in Queensland ranging northwards from River Heads (latitude 25°26') variably to Cape York Peninsula, I have personally recorded *E. hecabe* at 99 sites (involving 168

records) and *E. alitha* at 27 sites (involving 31 records). 'Sites' and 'records' are as defined previously (Dunn & Dunn 2006: see Note 17(iv) p.832 & Note 14, p.826 respectively). This frequency data gives one measure of encounter probability, assuming my collecting is typical of others and randomised to an extent. Like others, I have compiled records from multiple visits to favoured sites. Almost double the number of records relative to sites for *hecabe* indicates frequent repeated encounters on my separate visits. Moreover, the ratio of collection of *hecabe* to *alitha* exceeds 5:1. On the balance of probabilities then, wherever one or both species occurs, *hecabe* seems more likely to be encountered, inferentially *alitha* is 'rarer' by correlation. 'Rarity' though, is a multi-dimensional qualifier and other components of its measure, such as adult temporal abundances at each site, require inclusion in any schema attempting to measure this. Sands & New (2002: 15) assessed, "...the rarest species are those which occur in low numbers, at one or few sites, and are extreme specialists in their requirements..."



Figure 2. Two males of the *E. hecabe* group from River Heads Qld, both collected on 16 April 2007; uppermost adult is *E. alitha* (lengthier sex brand is discernible), lower male is *E. hecabe* (KLD collection).

River Heads now represents the southernmost locality and the only authentic record for south-eastern Queensland. Importantly, I have not otherwise collected the butterfly in the Maryborough district during my several visits and residency (Nov-Dec 1981, Mar-Dec 1988, Apr & Oct 1993, Sep 1994, Jan & Dec 2001, Jan 2002, & Apr 2007). Others have collected the Wide Bay district intensively since the 1970s (Dunn & Dunn database) circumstantially supportive of an assumption of vagrancy

for this individual. Of some interest as well, vagrants of several other central Queensland butterflies have been collected in the Wide Bay region on rare occasions. Four prominent examples were documented by Manskie & Manskie (1989), Dunn & Eastwood (1991), and Dunn & Dunn (1991) and involved *Graphium agamemnon*, *Arhopala centaurus*, *Tagiades jopetis*, and *Delias nympha*, each very rarely seen south of the tropics. Further collecting in the region will help establish whether *E. alithia* breeds temporarily or permanently, or whether the adult taken was a vagrant to the Wide Bay area.

### Acknowledgements

Thanks to Andrew Atkins (Eudlo) and Peter Fox (Innisfail) for their company in the Duaringa area of central Queensland and for sharing fuel costs, economising our collecting.

### References

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- Braby, M.F. 1999. A cautionary note on the use of observation records for documenting butterfly distributions. *Victorian Entomologist* 29(6): 105-107.
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- Tennent, W.J. 2006. *A checklist of the butterflies of Melanesia, Micronesia, Polynesia and some adjacent areas*. *Zootaxa* 1178. Auckland, New Zealand: Magnolia Press.
- Tennent, W.J. 2006a. Corrections to 'A checklist of the butterflies of Melanesia, Micronesia, Polynesia and some adjacent areas' published in *Zootaxa*, 1178 (2006). *Zootaxa* 1364: 65-66.



## Collecting biological specimens in the Northern Territory with particular reference to terrestrial invertebrates: guidelines to current legislation and permits

The following Northern Territory Government web site document (<http://www.nt.gov.au/nreta/wildlife/permits/pdf/invertebrates.pdf>) provides an overview of current legislation and permits regarding the collection of biological material, particularly terrestrial invertebrates, in the Northern Territory under the *Territory Parks and Wildlife Conservation Act* and *Environment Protection and Biodiversity Conservation Act (EPBC Act)*. The document defines several terms under the Northern Territory Government Act, types of permits issued by the Northern Territory Parks and Wildlife Service, and outlines various land management systems in the Northern Territory. Contrary to popular belief that all insects and invertebrates in the Northern Territory (estimated to range from 24,900 to 63,500 species for insects) are protected, only 48 species, from the Phyla Mollusca (31), Chelicerata (13) and Insecta (4), are currently listed as Protected Wildlife. Of the protected species, 35 are designated as Threatened Wildlife, of which five are also listed nationally under the *EPBC Act*. However, all native invertebrates that occur within the boundaries of national parks and other conservation areas managed by the Northern Territory Parks and Wildlife Service or Parks Australia are protected under the *Territory Parks and Wildlife Conservation Act* or *EPBC Act*, respectively. Relative merits of the current legislation and permit system are also discussed.

Michael Braby

### Message from the Treasurer

Although the Society has not raised its subscriptions for sixteen years, large cost increases for printing and our occasional use of colour in the newsletter forced me to recommend to the Annual General Meeting that a subscription increase was necessary. Members present at the AGM accepted the new subscription rates:

Ordinary	\$30
Country	\$26
Overseas	\$32
Electronic (only)	\$20
Associate	\$ 7
Student	\$18
Institution Australia	\$35
Institution Overseas	\$40

These rates come into effect from 1 January 2008.

You will notice that we are now offering an Electronic subscription to the Newsletter at a reduced rate from the other membership categories.

No paper copies will sent to you if you take this option.

Also, you must notify the Treasurer and pay your electronic subscription before 31 January each year. Once we have distributed the February issue the electronic subscription rate for that year will lapse.

I look forward to your continued support of the Society

Ian Endersby  
Hon. Treasurer



# Some Old Butterfly Records for the Koolan Island Area, Kimberley, Western Australia

R. GRUND

9 Parkers Rd, Torrens Park, Adelaide, S.A., 5062

The following butterflies were received by the author in 1973, from a collection made by a school teacher working at the BHP Koolan Island iron-ore mine (Yampi Sound). Unfortunately, due to the continuous work related travels of the author at the time, the name of this male school-teacher has been lost. The small collection spans the period January 1951 to March 1953. Although these butterflies are now known from the area (Braby 2000) they are presented here as a historical documentation, that unfortunately should have been made much earlier. The collection is presently held by the author.

## HESPERIIDAE

*Telicota* sp (either *augias* or *colon*) 2 males Labelled: Yampi Jan 1951

## PAPILIONIDAE

*Papilio fuscus canopus* 2f Yampi Feb, 1952

*Papilio fuscus canopus* 1m Yampi 10.3.53 (small specimen)

## PIERIDAE

*Belenois java teutonia* 3m,1f Yampi 31.1.52

*Catopsilia pomona form crocale* 1m,1f Derby 30.1.52

*Catopsilia scylla ctesia* 1m,1f Derby 30.1.52

*Cepora perinnale scyllara* (wet season form) 2m Yampi 29.1.52

*Delias argentilona* 1m,1f Yampi Sound Nov 1951

*Eurema hecabe phoebus* 1f No label (or lost)

*Eurema herla* 1f Yampi Oct 1951

*Eurema smilax* 1m,1f No label (or lost)

## NYMPHALIDAE

*Hypocysta adiante antirius* 1m No label (or lost)

*Junonia orithya albicincta* 1f "Coppermine" 23.3.52

## LYCAENIDAE

*Arhopala centaurus asopus* 4m Yampi Jan 1952

*Hypolycaena pliorbas* 1m Yampi April 1952

The label Yampi probably refers to the Yampi iron-ore mining centre on Koolan Island. "Coppermine" probably refers to Coppermine Creek/Estuary on the Kimberley mainland.

The two male *Cepora perinnale* are the very pale wet season form, in which the white spots along the black wing margins are not very well developed, and the hindwing undersides are 'cream' coloured.

## REFERENCE

BRABY, M.F. 2000. *Butterflies of Australia*. Vol. I & II. 976pp. CSIRO Publishing, Melbourne.

The Australian Entomological Society publishes the *Australian Journal of Entomology* quarterly. The Entomological Society of Victoria is an affiliated society and will, in future, publish the contents of the Journal for the wider interest of its members.

## SYSTEMATICS

**Murray J Fletcher & Linda Semeraro:** Genus *Carvaka* Distant in Australia (Hemiptera: Cicadellidae: Selenocephalinae)

**Judy F Grimshaw & John F Donaldson:** New records of mango shield scale *Milviscutulus mangiferae* (Green) Hemiptera: Coccidae) and *Brevumia rehi* (Lindinger) Hemiptera: Pseudococcidae) in north Queensland

**Jocelyn A Berry:** Key to the New Zealand species of *Psyllaephagus* Ashmead (Hymenoptera: Encyrtidae) with descriptions of three new species and a new record of the psyllid hyperparasitoid *Coccidionotus psyllae* Riek Hymenoptera: Encyrtidae)

**Nate B Hardy & Penny J Gullan:** A new genus and four new species of felt scales on *Eucalyptus* (Hemiptera: Coccoidea: Eriococcidae) in south-eastern Australia

## EVOLUTIONARY ENTOMOLOGY

**Narelle C Joyce & Michael P Schwarz:** Sociality and sex allocation in an Australian allodapine bee *Braunsapis protruberans*

**Adeline Soulier-Perkins, Jérôme Sueur & Hannelore Hoch:** Historical use of substrate-borne acoustic production within the Hemiptera: first record for an Australian Lophopid (Hemiptera, Lophopidae)

## MOLECULAR SYSTEMATICS

**Ann-Marie Boyd & Desmond H Foley:** Distribution of sibling species of the *Anopheles annulipes* complex (Diptera: Culicidae) in the Townsville region of Australia

## PEST MANAGEMENT

**Sonya Broughton & Grant A Herron:** *Frankliniella occidentalis* (Pergande) (Thysanoptera: Thripidae) chemical control: insecticide efficacy associated with the three consecutive spray strategy

**Grant Herron, Sonya Broughton & Alan Clift:** *Frankliniella occidentalis* (Pergande) (Thysanoptera: Thripidae) chemical control: residues associated with the three consecutive spray strategy

**Andréa E A Stephens, D Max Suckling, Graham M Burnip, Juliet Richmond & Alan Flynn:** Field records of painted apple moth (*Teia anartoides* Walker: Lepidoptera: Lymantriidae) on plants and inanimate objects in Auckland, New Zealand

**Christopher Weldon & Alan Meats:** Short-range dispersal of recently emerged males and females of *Bactrocera tryoni* (Froggatt) (Diptera: Tephritidae) monitored by sticky sphere traps baited with protein and Lynfield traps baited with cue-lure

## INSECT BIOCONTROL

**Michael J Furlong & Myron P Zalucki:** Parasitoid complex of diamondback moth in south-east Queensland: first records of *Oomyzus sokolowskii* (Hymenoptera: Eulophidae) in Australia

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## DIARY OF COMING EVENTS

Tuesday 21th August  
Melanie Birtchnell will present a talk titled:  
"Drunken Honey Bees – Fact or Fiction?"

Tuesday 18th September  
Council Meeting

Saturday 13<sup>th</sup> October 10AM  
Excursion to Melbourne Zoo's Butterfly House

Tuesday 20th November  
Council Meeting

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions may be refereed, and authors alone are responsible for the views expressed.